



Staff scientist in Low Temperature research at OtaNano infrastructure

Aalto University



Aalto University



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Aalto University is a multidisciplinary community of bold thinkers where science and art meet technology and business.

Aalto University is a university where research, art and education are promoted hand in hand. We are committed to identifying and solving grand societal challenges and building an innovative future.

With high-quality research we aim at creating significant impact on the international scientific community, industry and business, as well as the society at large. Disciplinary excellence is combined with multidisciplinary activities, engaging both students and the local innovation ecosystem.

Aalto has with nearly 11 000 students and six schools and 400 professors. We are an international community: more than 40% of our academic personnel have an international background.

Aalto University was founded in 2010 as three leading Finnish universities, Helsinki University of Technology, the Helsinki School of Economics and the University of Art and Design Helsinki, were merged. Our campuses are located in Espoo and Helsinki, Finland.

The University campus in Espoo is developing into a unique, open innovation hub and a center of collaboration that attracts partners from all around the world. It encourages sharing of ideas, inter-disciplinary encounters, creativity, growth and entrepreneurship. The core of the campus will be a vibrant city with versatile services and attractive places to meet.



Aalto University

More info at
aalto.fi



Otanano & The Low Temperature Laboratory

OtaNano is a national research infrastructure focusing on competitive research in nanoscience and nanotechnology, and in quantum technologies.

OtaNano offers a wide variety of fabrication processes and equipment for micro- and nanostructures. The facilities cover a comprehensive range of imaging and characterisation equipment, including electron microscopy, nanomicroscopy, and x-ray scattering devices. Key activities include ultra-low-temperature characterization and high-frequency measurements.

OtaNano is a top-level learning environment for young researchers and an international centre for scientific research. The facilities are important for scientists as well as for high-tech companies working with micro- and nano-technology applications. OtaNano is a national platform to develop innovative enabling technologies and apply them to practical micro- and nano-systems.

OtaNano enjoys a rare position among Finnish research infrastructures for having over twenty years of international infrastructure cooperation through European large-scale infrastructure projects. OtaNano is an open access research infrastructure, operated by Aalto University and VTT, and is available for academic and commercial users internationally.

The Low Temperature Laboratory at Aalto University is one of the world centres in ultra low temperature physics and technology.

The Low Temperature Laboratory (LTL) is part of the national Otaniemi Research Infrastructure for Micro- and Nanotechnologies, OtaNano and partner in the European Microkelvin Platform.

The Low Temperature Laboratory, founded in 1965 by Academician Olli V. Lounasmaa, is one of the world centres in ultra low temperature physics and technology. The leading position is based on vigorous in-house development and construction of sub-mK refrigerators. In 2000 the laboratory reached the low temperature world record of 0.000 000 000 1 K. Scientific and technical staff of LTL has in-depth expertise in cryogenic techniques, development of cryogenic equipment and thermal control systems. LTL has advanced sub Kelvin refrigeration facilities: 3 sub-mK (unique rotating cryostat, world record stationary cryostat and dry demagnetization cryostat) and more than 20 dilution refrigerators aimed for different type of experiments.

More info at
aalto.fi/en/otanano



Staff Scientist, Low Temperature research

Staff Scientist

Low Temperature research at OtaNano infrastructure

Are you an expert in cryogenics, low temperature measurement techniques and nanofabrication? Would you like to work in an inspiring, world-class research environment? We are committed to ambitiously building a better world and offer you a chance to participate and contribute to realizing our vision as a member of our community.

The Low Temperature Laboratory (LTL) in Aalto University, Finland, is looking for a Staff Scientist to manage the daily operations of LTL cryogenic and fabrication facilities. The position is permanent and full-time. The starting date is as soon as possible, but can also be negotiated.

Your leading role is to provide daily experimental and technical support for research groups accessing LTL facilities. The job includes (but is not limited to):

Service tasks (55% of working time):

- ❖ Your main responsibility is to provide to LTL users technical support for day-to-day operations of cryogenic and nanofabrication facilities, user training for a variety of tools and instruments, together with the needed methods and skills to allow research work in a safe and productive way.
- ❖ Development and maintaining LTL technological and scientific capabilities, supporting the core fields of quantum technology and nanoelectronics, micro- and nanophotonics, and nanostructured materials.
- ❖ Opening LTL infrastructure up further via established partnerships, agreements and access programs and ensuring that the infrastructure governance and management are suited best to fulfil the mission of the OtaNano Research Infrastructure.

- ❖ Help to maintain the equipment at optimum operational performance and provide established processes to guarantee success in sample fabrication and its characterization from day one for a new user.
- ❖ Active management and development of LTL research infrastructure.

Student and user support and supervision (15% of working time):

- ❖ Students supervision during their first independent work and help them to enhance their acquired skills.
- ❖ User support in selected steps of the fabrication process to ensure a successful sample fabrication for the students from an early stage until the student masters all the necessary tools.

Research (30% of working time):

- ❖ Participating in research conducted at the highest international level, pushing the specific measurement or fabrication technology to its limit or inventing and testing completely new approaches. This leads unavoidably to difficulties and failures where the experience of the Staff Scientist is required in identifying the required measures to solve the problem.
- ❖ The field of research relates to quantum technology with superconducting qubits, acoustic, and other hybrid quantum systems.

More info at

<https://www.aalto.fi/en/open-positions/staff-scientist-position-in-low-temperature-research>



Staff Scientist, Low Temperature research

Your expertise

To succeed in this role, you'll need a combination of strong technical skills, deep expertise in cryogenics, low temperature measurement techniques and nanofabrication, as well as capability and ambition for research and teaching. Since this is also a service position, it is important that helping others motivates you, and that you can easily get along with different kind of people.

In more detail, you'll need

- ❖ Proven experience in cryogenic technologies, material science and in development of low noise measurement setups
- ❖ Experience in equipment maintenance
- ❖ PhD degree in physical/materials sciences/engineering or related discipline
- ❖ Excellent communication and cooperation skills
- ❖ Strong organization skills
- ❖ Ability to work independently and as part of a team
- ❖ Fluent oral and written skills in English

We also value

- ❖ Research experience in the fields of advanced low temperature physics, microwave&THz techniques, as well as nanomechanics and qubits in quantum hybrid systems
- ❖ Experience in e-beam lithography systems (pattern and process design, problem solving)
- ❖ Experience in development of RF installations
- ❖ Experience in vacuum techniques and electronics
- ❖ Experience in operation and maintenance of sputtering and thin film evaporation systems
- ❖ Experience with programming and familiar with MATLAB and CAD software
- ❖ Experience in RAMAN spectroscopy
- ❖ Experience in development, maintenance and repair of THz measurement systems

What we offer

We offer you a versatile and interesting position in a vibrant, multi-cultural academic environment. You will be able to use your skills and expertise to develop our world-class research environment, as well as to participate in research conducted at the highest international level.

The starting salary is determined according to collective agreement of Finnish Universities, depending on experience and qualifications, and it will increase with responsibilities and performance over time. We have flexible working time as well as wide range of opportunities to learn and develop yourself. In addition, we'll offer occupational health care services.

Ready to apply?

More information about applying:

<https://www.aalto.fi/en/open-positions/staff-scientist-position-in-low-temperature-research>

If you want to join our community, please submit your application no later than 1st of March 2021.

Should you have any questions about the position, we will be happy to answer. Please contact the team leader, Senior Staff Scientist Alexander Savin. He is best available on workdays during 10:00-12:00 Finnish time. Tel: +358 503442752. Email: firstname.lastname@aalto.fi.

More info at

<https://www.aalto.fi/en/open-positions/staff-scientist-position-in-low-temperature-research>



Working at Aalto University

Why join us?

Established in 2010 as a merger of three leading Finnish Universities, we are both challenger of the old, and traditional with strong history and legacy.

Our unique combination of fields in art and design, technology and business enable multi-disciplinarity and finding clever solutions for the world's most wicked problems in the interfaces of these fields.

We aim for societal impact, educating game changers to drive sustainability.

We enjoy working at our evolving collaborative campus close to the heart of Helsinki, with good connections, great architecture and amazing nature.

We are international and diverse: more than 40 % of our faculty comes from outside of Finland. Our working environment is multi-cultural, widely English-speaking and its easy to settle in, despite of wherever you come from.

We have strong [academic standing and reputation in our key fields](#) – Aalto University is among top 10 of New Universities in the world (QS ranking).

[OtaNano](#) is a national strategic research infrastructure on Academy of Finland roadmap since 2013, operated jointly by Aalto and VTT. In 2020 OtaNano was selected again for the national roadmap 2021 – 2024.

The Low Temperature Laboratory at Aalto University is one of the world centres in ultra low temperature physics and technology. [Check out the LTL milestones!](#)



Living in Finland

Finland is [among the best countries in the world](#) according to many quality of life indicators, including being the [happiest country in the world \(UN study 2018\)](#).

We are humble people, but dare to say we have one of the most advanced education systems in the world.

The Nordic values of equality and cooperation are rooted deeply into our society. We are one of the world's top countries in press freedom and consider the many voices in our society a strength.

With high investments in R&D, a strong innovation culture, open data and advanced state of digitalization, we are a nation of innovation and entrepreneurship.

Gender equality, flexibility and low hierarchy are at the core of our Nordic working environment. Professional ambitions can be combined with a fulfilling personal life.

We are one of the world's most reliable and stable nations with low levels of corruption and high level of safety. We are proud to provide exceptionally high standards of social security and healthcare, financed by the state.

Having four distinct seasons, clean air and thousands of lakes, we are some nature-loving people and take good care of our unique environment. We enjoy our midnight sun in the summer and northern lights in the winter.

Finnish language is known to be a bit on the complicated side, but don't worry, we Finns are fluent in English, and have an international mindset.

We have wide and reliable transport networks, with Helsinki airport serving over 100 direct destinations. The comprehensive public transport makes it easy to commute. Our campus is situated within a 10 minute metro ride from the heart of Helsinki.

Want to live in the best country in the world?

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**Aalto University –
a community of
game changers**
aalto.fi



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